Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: August 25, 2006

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: NPDES Permits and Engineering Section / Permit Comments. **Please include the permit number in all comment letters.**

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by September 25, 2006 or received in our office by 5:00 p.m. on September 28, 2006. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.mo.gov/env/wpp/index.html, or at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: August 25, 2006
Permit Number: MO-0000574
Southeast Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
Wings Lake 10865 Wings Lake Drive, Sullivan, MO 63080	Upland Wings, Inc. 1185 Ross Road, St. Louis, MO 63146
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Legal Description: NE ¼, SW ¼, Sec.3, T39N, R1W, Washington County Latitude/Longitude: Outfall 001: +3807497/-9101345 Outfall 002: +3807482/-9101333 Receiving Stream: Mary's Creek (P)	

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0000574
Owner:	Upland Wings, Inc.
Address:	1185 Ross Road, St. Louis, MO 63146
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Wings Lake
Address:	10865 Wings Lake Drive, Sullivan, MO 63080
Legal Description:	NE ¼, SW ¼, Sec.3, T39N, R1W, Washington County
Latitude/Longitude:	Outfall 001: +3807497/-9101345 Outfall 002: +3807482/-9101333
Receiving Stream:	Mary's Creek (P)
First Classified Stream and ID:	Mary's Creek (P) (03661)
USGS Basin & Sub-watershed No.:	(07140102-003030)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

(See Page Two)

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

Outfall #001 – Industrial Stormwater – SIC #0971, 1011
Former iron mine converted to hunting & fishing recreation area with some screening and removal of iron ore and aggregate. No milling, reprocessing, or mining activities at this time. Stormwater & discharge from mine tailings pond. Settling only.
Design flow is 2.8 million gallons per day.
Actual flow is 80,000 gallons per day.

Outfall #002 – Domestic wastewater – SIC #4952
Single cell lagoon
Design flow is 0.5 million gallons per day.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until three (3) years from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	**INTERIM** EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	Daily	24 hr. total
Total Suspended Solids	mg/L	30		20	Once/quarter	grab
Oil and Grease	mg/L	20		15	Once/quarter	grab
Fluoride	mg/L	15		12	Once/quarter	grab
Iron, Total	mg/L	2.0		1.0	Once/quarter	grab
Lead, Total	mg/L	0.020		0.020	Once/quarter	grab
Chromium, Total	mg/L	0.042		0.042	Once/quarter	grab
Cadmium, Total	mg/L	0.013		0.013	Once/quarter	grab
Copper, Total	mg/L	0.029		0.029	Once/quarter	grab
Zinc, Total	mg/L	0.345		0.345	Once/quarter	grab
Sulfate	mg/L	*		*	Once/quarter	grab
Chloride	mg/L	*		*	Once/quarter	grab
pH – Units**	SU	6-9		6-9	Once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE date here.						
Whole Effluent Toxicity (WET) Test	% Survival	(Special Condition #8)			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED SEMI-ANNUALLY; THE FIRST REPORT IS DUE date here						
Outfall #002						
Flow	MGD	*		*	Daily	grab
Biochemical Oxygen Demand (BOD_5)	mg/L		65	45	Once/quarter	grab
Total Suspended Solids	mg/L		120	80	Once/quarter	grab
pH – Units	SU	***		***	Once/quarter	grab
Ammonia as N	mg/L	*		*	Once/quarter	grab
Temperature	°C	*		*	Once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE date here.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont).

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until four (4) years and 364 days from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002						
Fecal Coliform (Note 1)	#/100mls	*		*	Once/quarter	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE date here. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PERMIT NUMBER MO-0000574

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective three (3) years from the date of issuance of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	**FINAL** EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	Once/quarter	24 hr. total
Total Suspended Solids	mg/L	30		20	Once/quarter	grab
Oil and Grease	mg/L	15		10	Once/quarter	grab
Fluoride	mg/L	6.5		3.3	Once/quarter	grab
Iron, Total	mg/L	1.65		0.8	Once/quarter	grab
Lead, Total	mg/L	0.006		0.003	Once/quarter	grab
Chromium III, Total Recoverable	mg/L	0.042		0.042	Once/quarter	grab
Chromium IV, Total Recoverable	mg/L	0.015		0.008	Once/quarter	grab
Cadmium, Total Recoverable	mg/L	0.0005		0.0003	Once/quarter	grab
Copper, Total	mg/L	0.012		0.006	Once/quarter	grab
Zinc, Total	mg/L	0.12		0.06	Once/quarter	grab
Temperature	°F	90°			Once/quarter	grab
Sulfate	mg/L	*		*	Once/quarter	grab
Chloride	mg/L	*		*	Once/quarter	grab
pH – Units**	SU	6 – 9		6 – 9	Once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE date here.						
Whole Effluent Toxicity (WET) Test	% Survival	(Special Condition #8)			Once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED SEMI-ANNUALLY; THE FIRST REPORT IS DUE date here.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective three (3) years from the date of issuance of this permit and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	**FINAL** EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002						
Flow	MGD	*		*	Once/quarter	grab
Biochemical Oxygen Demand (BOD_5)****	mg/L		65	45	Once/quarter	grab
Total Suspended Solids****	mg/L		120	80	Once/quarter	grab
pH – Units**	SU	***		***	Once/quarter	grab
Temperature	ºC	*		*	Once/quarter	grab
Ammonia as N (May 1 – Oct 31)	mg/L	3.7		1.9	Once/quarter	grab
Ammonia as N (Nov 1 – Apr 30)	mg/L	7.5		3.7	Once/quarter	grab
Fecal Coliform (Note 1)	#/100mls	1000		400	Once/quarter	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE date here. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** pH is measured in pH units and is not to be averaged.
*** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.
**** This facility is required to meet a removal efficiency of 65% or more.
Note 1 Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge from outfall 002 by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
   (c) That the effluent limit established in part A of the permit will be exceeded.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards
   (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

C. SPECIAL CONDITIONS (continued)

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
001	100	Once/year	24 hr. composite	August

   (a) Test Schedule and Follow-Up Requirements
      (1) Perform a SINGLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
         (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
         (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
         (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
         (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
         (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
         (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
         (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
         (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
         (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
         (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
         (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
         (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
         (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
      (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

C. SPECIAL CONDITIONS (continued)

(3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
   (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
   (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.

(5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(10) Submit a concise summary in tabular format of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other Federal guidelines as appropriate or required.

(2) To pass a multiple-dilution test:
   (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
   (b) For facilities with an AEC greater than 30% the LC50 concentration must be greater than 100%; **AND**,
   (c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS.

(3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

C. SPECIAL CONDITIONS (continued)

(4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(5) Single-dilution tests will be run with:
- (a) Effluent at the AEC concentration;
- (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
- (c) reconstituted water.

(6) Multiple-dilution tests will be run with:
- (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
- (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
- (c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

9. The permittee shall apply for a modification to this permit if milling or the reprocessing of tailings activities occur, or if mining activities resume.

D. SCHEDULE OF COMPLIANCE

1. The final daily maximum and monthly average Fecal Coliform limits of 400/100mL and 1000/100mL, respectively, shall Become effective one day prior to the expiration date of the permit or December 31, 2013, whichever comes first unless items 2 or 3 below are approved by the Department. The Effluent Regulation, 10 CSR 20-7.015(9)(H), allows the permittee up to five years from the issuance date of this permit to:
   - (a) Install disinfection facilities, or;
   - (b) Present an evaluation to show that disinfection is not required to protect one or both recreational uses, or:

2. If chlorination is the chosen method of disinfection, a Total Residual Chlorine limit will be added to the permit.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
WATER PROTECTION PROGRAM
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: Upland Wings NPDES #: MO-0000574

FACILITY TYPE/DESCRIPTION: Former iron mine converted to private hunting & fishing recreation area. Tailings pond [outfall 001] still in existence and must be controlled by current owner, current flow averages 0.08 MGD. Outfall 002 is a one cell lagoon no longer in use, 0.5 MGD design flow.

EDU: Ozark \ Meramec Drainage 8-DIGIT HUC: 07140102 COUNTY: Washington

EDU = Ecological Drainage Unit

LEGAL DESCRIPTION: NE ¼, SW ¼, SW ¼, Sec. 3, T39N, R1W LATITUDE/LONGITUDE: +3807497/-09101345

WATER QUALITY HISTORY: Occasional exceedences for various parameters. Reporting no discharge much of the time.

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	4.4	Settling	Mary's Creek	
002	0.8	Equivalent to Secondary	Mary's Creek	

Receiving Waterbody Information

WATERBODY	CLASS	WBID	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)	*DESIGNATED USES
Mary's Creek	P	3661	0.1	0.1	1.0	AQL, LWW, WBC

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: Effluent limits changed from previous permit to indicate that the area is no longer an active mine. Unauthorized mining of aggregate occurring from tailing pond damn.

MIXING CONSIDERATIONS

Mixing Zone (MZ). One quarter of the stream volume of flow, length of ¼ mile. 10 CSR 20-7.031(4)(A)4.B.(II)(a)

Zone of Initial Dilution (ZID). One tenth of the MZ volume of flow. 10 CSR 20-7.031(4)(A)4.B.(II)(b)

	Flow (cfs)	MZ (cfs)	ZID (cfs)
1Q10	0.1	0.025	0.0025
7Q10	0.1	0.025	0.0025
30Q10	1.0	0.25	N/A

Permit Limits And Information

TMDL WATERSHED: (Y OR N) [N] W.L.A. STUDY CONDUCTED: (Y OR N) [N] DISINFECTION REQUIRED: (Y OR N) [Y] USE ATTAINABILITY ANALYSIS (Y,N) [N]

OUTFALL# 001

WET TEST (Y OR N): [Y] FREQUENCY: TWICE/YEAR A.E.C. 100% LIMIT: 10 CSR 20-7.031(3)(I)2.

$$\text{A.E.C. \%} = \left(\frac{\text{Design Flow + Zone of Initial Dilution}}{\text{Design Flow}} \right)^{-1} X100$$

PARAMETER	UNITS	MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY
FLOW		MONITOR		MONITOR	DAILY
TOTAL SUSPENDED SOLIDS	mg/L	30		20	ONCE/MONTH
PH	SU	6-9		6-9	ONCE/MONTH
HARDNESS, TOTAL	mg/L	MONITOR		MONITOR	ONCE/MONTH
CADMIUM, TOTAL RECOVERABLE	µg/L	0.5		0.3	ONCE/MONTH
CHLORIDE	mg/L	MONITOR		MONITOR	ONCE/MONTH
CHROMIUM III, TOTAL RECOVERABLE	µg/L	140		70	ONCE/MONTH
CHROMIUM VI, TOTAL RECOVERABLE	µg/L	15.2		7.6	ONCE/MONTH
COPPER, TOTAL RECOVERABLE	µg/L	11.8		5.9	ONCE/MONTH
FLOURIDE	mg/L	6.5		3.3	ONCE/MONTH
IRON, TOTAL RECOVERABLE	µg/L	1648		822	ONCE/MONTH
LEAD, TOTAL RECOVERABLE	µg/L	6.5		3.3	ONCE/MONTH
SULFATE	mg/L	MONITOR		MONITOR	ONCE/MONTH
ZINC, TOTAL RECOVERABLE	µg/L	121		60	ONCE/MONTH
OIL & GREASE	mg/L	15		10	ONCE/MONTH

OUTFALL# 002

WET TEST (Y OR N): N FREQUENCY: _____ A.E.C. _____ LIMIT: _____

PARAMETER	UNITS	MAXIMUM DAILY LIMIT	WEEKLY AVERAGE LIMIT	AVERAGE MONTHLY LIMIT	MONITORING FREQUENCY
FLOW		MONITOR		MONITOR	DAILY
BIOCHEMICAL OXYGEN DEMAND (BOD_5)	mg/L		65	45	ONCE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L		120	80	ONCE/MONTH
PH	SU	6 or above		6 or above	ONCE/MONTH
AMMONIA AS N (MAY 1 – OCT 31)	mg/L	3.7		1.9	ONCE/MONTH
AMMONIA AS N (NOV 1 – APR 30)	mg/L	7.5		3.7	ONCE/MONTH
TEMPERATURE	°C				
FECAL COLIFORM	NOTE 1	1000		400	ONCE/MONTH
TOTAL RESIDUAL CHLORINE	µg/L	16.5		8.2	ONCE/MONTH

NOTE 1 – COLONIES/100 ML,

Derivation and Discussion of Limits

Wasteload allocations (WLA) were calculated using water quality criteria and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow (cfs)
C_e = effluent concentration
Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow.

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

OUTFALL# 001

- **Total Suspended Solids** limits carried over from previous permit.
- **pH**. pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)2.].
- **Chloride and Sulfate** Monitoring only to determine contributions from this facility. Because the mine is closed, and because of active reclamation efforts by the new owner, Chloride and Sulfate contributions will be different than in the past and are expected to decrease.

- **Flouride** Livestock & Wildlife Watering chronic criteria 4 mg/l. Background assumed to be = 0 µg/L.

Chronic

$C_e = ((4.4 + 0.025)4 – (0.025 * 0.0))/4.4$

$C_e = 4$ mg/L

$WLA_c = 4$ mg/L

$LTA_c = 4(0.527) = 2.1$ mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 2.1(3.11)= 6.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.1(1.55)= 3.3 mg/L [CV = 0.6, 95th Percentile, n = 4]

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 124 mg/L.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Copper	0.960	0.960
Iron	N.A.	N.A.
Lead	0.760	0.760
Zinc	0.978	0.986

*Conversion factor for Cd Pb is hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 124 mg/L.

- **Total Recoverable Cadmium** Protection of Aquatic Life chronic criteria = 0.3 µg/L, acute criteria = 4.8 µg/L. Background assumed to be = 0 µg/L.

Chronic = 0.3/0.900 = 0.3 µg/L
Acute = 4.8/0.935 = 5.1µg/L

Chronic

$C_e = ((4.4 + 0.025)0.3– (0.025 * 0.0))/4.4$

$C_e = 0.3$ µg/L

$WLA_c = 0.3$ µg/L

Acute

$C_e = ((4.4 + 0.0025)5.1 – (0.0025 * 0.0))/4.4$

$C_e = 5.1$ µg/L

$WLA_c = 5.1$ µg/L

$LTA_c = 0.3(0.527) = 0.16$ µg/L [CV = 0.6, 99th Percentile]
$LTA_a = 5.1(0.321) = 1.6$ µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 0.16(3.11)=0.5 µg/L [CV = 0.6, 99th Percentile]
AML = 0.16(1.55)=0.3 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **<u>Total Recoverable Chromium III</u>** Protection of Aquatic Life chronic criteria = 74 µg/L, acute criteria = 570 µg/L. Background assumed to be = 0 µg/L.

  Chronic = 74/0.860 = 86 µg/L
  Acute = 570/0.316 = 1804µg/L

  Chronic
  C_e = ((4.4 + 0.025)86– (0.025 * 0.0))/4.4
  C_e = 86 µg/L
  WLA_c = 86 µg/L

  Acute
  C_e = ((4.4 + 0.0025)1804 – (0.0025 * 0.0))/4.4
  C_e = 1805 µg/L
  WLA_c = 1805 µg/L

  LTA_c = 86(0.527)= 45 µg/L [CV = 0.6, 99th Percentile]
  LTA_a = 1805(0.321)= 579 µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 45(3.11)=140 µg/L [CV = 0.6, 99th Percentile]
  AML = 45(1.55)= 70 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **<u>Total Recoverable Chromium VI</u>** Protection of Aquatic Life chronic criteria = 10 µg/L, acute criteria = 15 µg/L. Background assumed to be = 0 µg/L.

  Chronic = 10/0.962 = 10.4 µg/L
  Acute = 15/0.982 = 15.3µg/L

  Chronic
  C_e = ((4.4 + 0.025)10.4– (0.025 * 0.0))/4.4
  C_e = 10.5 µg/L
  WLA_c = 10.5 µg/L

  Acute
  C_e = ((4.4 + 0.0025)15.3 – (0.0025 * 0.0))/4.4
  C_e = 15.3 µg/L
  WLA_c = 15.3 µg/L

  LTA_c = 10.5(0.527)= 5.5 µg/L [CV = 0.6, 99th Percentile]
  LTA_a = 15.3(0.321)= 4.9 µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 4.9(3.11)=15.2 µg/L [CV = 0.6, 99th Percentile]
  AML = 4.9(1.55)= 7.6 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **<u>Total Recoverable Copper</u>** Protection of Aquatic Life chronic criteria = 7 µg/L, acute criteria = 13 µg/L. Background assumed to be = 0 µg/L.

  Chronic = 7/0.960 = 7.3 µg/L
  Acute = 13/0.960 = 13.5µg/L

  Chronic
  C_e = ((4.4 + 0.025)7.3– (0.025 * 0.0))/4.4
  C_e = 7.3 µg/L
  WLA_c = 7.3 µg/L

Acute

C_e = ((4.4 + 0.0025)13 – (0.0025 * 0.0))/4.4
C_e = 13.5 □g/L
WLA_c = 13.5 □g/L

LTA_c = 7.3(0.527)= 3.8 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 13.5(0.321)= 4.3 µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 3.8(3.11)= 11.8 µg/L [CV = 0.6, 99th Percentile]
AML = 3.8(1.55)= 5.9 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Iron** Protection of Aquatic Life chronic criteria = 1000 µg/L. Background assumed to be = 0 µg/L.

Chronic

C_e = ((4.4 + 0.025)1000– (0.025 * 0.0))/4.4
C_e = 1006 µg/L
WLA_c = 1006 µg/L

LTA_c = 1005(0.527)= 530 µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 530(3.11)= 1648 µg/L [CV = 0.6, 99th Percentile]
AML = 530(1.55)= 822 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Lead** Protection of Aquatic Life chronic criteria = 3 µg/L, acute criteria = 65 µg/L. Background assumed to be = 0 µg/L.

Chronic = 3/0.760 = 4 µg/L
Acute = 65/0.760 = 86 µg/L

Chronic

C_e = ((4.4 + 0.025)4– (0.025 * 0.0))/4.4
C_e = 4 µg/L
WLA_c = 4 µg/L

Acute

C_e = ((4.4 + 0.0025)86 – (0.0025 * 0.0))/4.4
C_e = 86 µg/L
WLA_c = 86 □g/L

LTA_c = 4(0.527)= 2.1 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 86(0.321)= 27.6 µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 2.1(3.11)=6.5 µg/L [CV = 0.6, 99th Percentile]
AML = 2.1(1.55)=3.3 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Total Recoverable Zinc** Protection of Aquatic Life chronic criteria = 107 µg/L, acute criteria = 117 µg/L. Background assumed to be = 0 µg/L.

Chronic = 107/0.986 = 109 µg/L
Acute = 117/0.978 = 120 µg/L

Chronic

C_e = ((4.4 + 0.025)109– (0.025 * 0.0))/4.4
C_e = 110 µg/L
WLA_c = 110 µg/L

Acute

$C_e = ((4.4 + 0.0025)120 – (0.0025 * 0.0))/4.4$

$C_e = 120$ µg/L

$WLA_c = 120$ µg/L

$LTA_c = 110(0.527) = 58$ µg/L [CV = 0.6, 99th Percentile]

$LTA_a = 120(0.321) = 39$ µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 39(3.11)=121 µg/L [CV = 0.6, 99th Percentile]

AML = 39(1.55)=60 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

OUTFALL# 002

- **Biochemical Oxygen Demand** 10 CSR 20-7.015(8)(B)3.A.
- **Total Suspended Solids** 10 CSR 20-7.015(8)(B)3.A.
- **pH**. pH shall be maintained greater than six (6) standard units [10 CSR 20-7.015(8)(B)3.A.].
- **Ammonia as Nitrogen**. Total Ammonia Nitrogen – Early Life Stages Present criteria apply 10 CSR 20-7.031(4)(B)7.C. & Table B3. Background ammonia as nitrogen for receiving stream is assumed to be = 0.01mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C – (Q_s * C_s))/Q_e$

Summer

Chronic

$C_e = ((0.8 + 0.025)1.5 – (0.025 * 0.01))/0.8$

$C_e = 1.5$ mg/L

$WLA_c = 1.5$ mg/L

Acute

$C_e = ((0.8 + 0.0025)12.1 – (0.0025 * 0.01))/0.8$

$C_e = 12.1$ mg/L

$WLA_a = 12.1$ mg/L

$LTA_c = 1.5(0.780) = 1.2$ mg/L [CV = 0.6, 99th Percentile, n=30]

$LTA_a = 12.1(0.321) = 3.9$ mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.2(3.11)= 3.7 mg/L [CV = 0.6, 99th Percentile]

AML = 1.2(1.55)= 1.9 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

Chronic

$C_e = ((0.8 + 0.025)3.1 – (0.025 * 0.01))/0.8$

$C_e =$ 3.1 mg/L

$WLA_c =$ 3.1 mg/L

Acute

$C_e = ((0.8 + 0.0025)12.1 – (0.0025 * 0.01))/0.8$

$C_e =$ 12.2 mg/L

$WLA_a =$ 12.2 mg/L

$LTA_c = 3.1(0.780) = 2.4$ mg/L [CV = 0.6, 99th Percentile, n=30]

$LTA_a = 12.2(0.321) = 3.9$ mg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 2.4(3.11)= 7.5 mg/L [CV = 0.6, 99th Percentile]

AML = 2.4(1.55)= 3.7 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	3.7	1.9
Winter	7.5	3.7

- **Temperature** Monitoring required because ammonia toxicity varies with temperature.

- **Fecal Coliform** – geometric mean of 400 colonies/ 100 mL monthly average and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015(8)(B)4.A.] Future renewals of the facility operating permit will contain effluent limitations for E. coli which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.

- **Total Residual Chlorine**. Warm water acute criteria = 19 µg/L, warm water chronic criteria = 10 µg/L [10 CSR 20-7.031, Table A]. Background = 0.0 mg/L.

Chronic

$C_e = ((0.8 + 0.025)10 – (0.025 * 0.0))/0.8$

$C_e =$ 10 µg/L

$WLA_c =$ 10 µg/L

Acute

$C_e = ((0.8 + 0.0025)19 – (0.0025 * 0.0))/0.8$

$C_e =$ 19 µg/L

$WLA_a =$ 19 µg/L

$LTA_c = 10(0.527) = 5.3$ µg/L [CV = 0.6, 99th Percentile]

$LTA_a = 19(0.321) = 6.1$ µg/L [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a. = 0.005 mg/L

MDL = 5.3(3.11)= 16.5 µg/L [CV = 0.6, 99th Percentile]

AML = 5.3(1.55)= 8.2 µg/L [CV = 0.6, 95th Percentile, n = 4]

Reviewer: Curt Gateley
Date: 5-22-06
Unit Chief: Refaat Mefrakis

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.